

REMARKS

Claim 1 has been amended in a non-limiting manner to emphasize that the bolt which undergoes the bluing treatment contains 0.55% - 3% Si. Similarly, new claim 15 has been added. This claim is similar in scope to claim 1.

New claims 12-14 have been added, specifying more precise Si content, temperature ranges, and Cr content, respectively. Support for these new claims exists throughout the present specification, including pars. [0015], [0030] and [0034].

New claims 16-18 correspond to original claims 2-4 but depend from new claim 15.

Claims 1-18 are currently pending.

The Office Action rejected the pending claims under 35 U.S.C. § 103 as obvious over U.S. patent application publication no. 2002/0179207 (“Koike”) in view of JP 2000-337333 (“Ibaraki”). In view of the following comments, Applicants respectfully request reconsideration and withdrawal of this rejection in view of the following comments.

The present specification demonstrates that bolts having less than 0.55% Si are inferior, even if such bolts are subjected to bluing treatments within the claimed temperature ranges. It also demonstrates that bolts which do not undergo bluing treatments are inferior, even if such bolts contain 0.55% or more Si.

More specifically, pars. [0045] and [0046] of the present application, along with figure 4 of the present application, demonstrate that bolts having less than 0.55% Si or bolts which do not undergo bluing treatments possess inferior relaxation resistance properties. On the other hand, the present application demonstrates that bolts having 0.55% to 3% Si which undergo bluing treatments possess improved relaxation resistance properties.

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The pending claims all require the presence of at least 0.55% Si and bluing treatments. Thus, the pending claims cover those bolts having improved relaxation resistance properties, but exclude those bolts which do not (bolts containing less than 0.55% Si or which do not undergo bluing treatments).

Koike neither teaches nor suggests the claimed invention. In fact, Koike teaches away from the claimed invention.

Koike, at pars. [0025]-[0026], expressly limits Si content to 0.5%. In this regard, Koike explains that “the excessive Si content is likely to lower the ductility as well as the cold heatability of the steel wire,” and then indicates that preferred Si content is 0.1% or 0.05%. (Par. [0026]). Furthermore, comparative example F in Koike contains 0.89% Si. Table 3 (test no. 8) indicates that this sample “cracked,” and thus was unacceptable. The clear teaching of Koike was that Si content greater than 0.5% was unacceptable and should not be used. In at least this way Koike teaches away from the claimed invention.

Ibaraki, which does not relate to bluing treatments in any way, can not compensate for Koike's fatal deficiencies. That is, nothing in Ibaraki would prompt one skilled in the art to completely disregard Koike's express teaching that more than 0.5% Si should not be used because it yields an unacceptable product. Rather, one skilled in the art, seeking to prepare bolts using methods including a bluing treatment, would follow Koike's disclosure and limit his search to bolts having no more than 0.5% Si. As a result, one skilled in the art would not produce bolts having improved relaxation resistance properties. Instead, the art would be without such bolts. It is only because the present inventors went directly against Koike's disclosure that they were able to discover bolts having the improved relaxation resistance properties of the present invention.

In sum, the applied art would not have motivated one skilled in the art to arrive at the claimed invention, but rather would have led one skilled in the art away from it. Under such circumstances, the claimed invention cannot be obvious.

In view of the above, Applicants respectfully request reconsideration and withdrawal of the rejection under 35 U.S.C. § 103.

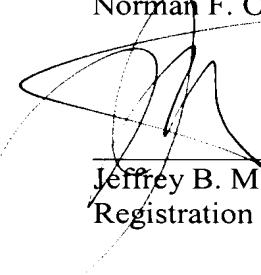
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Applicants believe that the present application is in condition for allowance. Prompt and favorable consideration is earnestly solicited.

Respectfully submitted,

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